



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

APPEAL BRIEF FOR THE APPELLANT

Ex parte Masaru SUGANO et al. (Applicant)

DESCRIPTION SCHEME AND BROWSING METHOD FOR AUDIO/VIDEO SUMMARY

Application Number: 09/863,352

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Art Unit: 2424

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Appeal Brief
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BRIEF ON APPEAL

(I) REAL PARTY IN INTEREST

The real party in interest is **KDDI CORPORATION**, by an assignment recorded in the U. S. Patent and Trademark Office on **May 24, 2001**, at Reel **011839**, Frame **0437**.

(II) RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to appellant, appellant's legal representative, or assignee that will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(III) STATUS OF CLAIMS

Claims 10, 12-14, 16-19, 21-23 and 25-57 are rejected and are appealed. Claims 1-9, 11, 15, 20 and 24 are cancelled.

(IV) STATUS OF AMENDMENTS

No amendments were filed subsequent to the Final Rejection.

(V) SUMMARY OF THE CLAIMED SUBJECT MATTER

There are four (4) independent claims pending in the present application: claims 10, 19, 36 and 43.

Claim 10

The embodiment of claim 10 is directed to a method of describing summary data of at least one of audio data, video data, and audiovisual data (hereinafter called audio/video) (*e.g.*, page 11, lines 12-14), said method comprising: (A) identifying multiple compressed or uncompressed original audio/video programs (*e.g.*, page 11, lines 14-18; step S11'); (B) identifying one or more slide components which are each a reduced temporal segment from a corresponding one of said multiple compressed or uncompressed original audio/video programs (*e.g.*, page 11, line 22 to page 12, line 8, steps S12' and S13'); (C) forming an audio/video slide comprising said slide components (*e.g.*, page 12, lines 9-22, Figures 5A and 5B); and (D) providing a textual description of the slide components as an external file such that the slide components are described sequentially (*e.g.*, page 12, line 23 to page 13, line 11, Figure 5C); wherein the textual description of the slide components includes a temporal description temporally describing each slide component and its corresponding original audio/video program and allowing for a bidirectional transition between the multiple original audio/video programs and the slide components (*e.g.*, page 9, line 20 to page 10, line 11, Figures 2B, 3 and 5B).

Claim 19

The embodiment of claim 19 is directed to a method of describing summary data of at least one of audio data, video data, and audiovisual data (hereinafter called audio/video) (*e.g.*, page 11, lines 12-14), said method comprising: (A) identifying multiple compressed or uncompressed original audio/video programs (*e.g.*, page 11, lines 14-18; step S11'); (B) identifying one or more slide components which are each a reduced temporal segment from a corresponding one of said multiple compressed or uncompressed original audio/video programs (*e.g.*, page 11, line 22 to page 12, line 8, steps S12' and S13'); (C) forming an audio/video slide comprising said slide components (*e.g.*, page 12, lines 9-22, Figures 5A and 5B); (D) providing a textual description of the slide components as an external file such that the components are described sequentially (*e.g.*, page 12, line 23 to page 13, line 11, Figure 5C); and (E) displaying the description of the slide components (*e.g.*, page 14, lines 4-17, Figure 7), wherein the textual description of the slide components includes a temporal description temporally describing each slide component and its corresponding original audio/video program and allowing for a bidirectional transition between the multiple original audio/video programs and the slide components (*e.g.*, page 9, line 20 to page 10, line 11, Figures 2B, 3 and 5B).

Claim 36

The embodiment of claim 36 is directed to a method of describing summary data of audio data (*e.g.*, page 11, lines 12-14), said method comprising: (A) identifying multiple compressed or uncompressed original audio programs(*e.g.*, page 11, lines 14-18; step S11'); (B) identifying one

or more slide components which are each a reduced temporal segment from a corresponding one of said multiple compressed or uncompressed original audio programs (*e.g.*, page 11, line 22 to page 12, line 8, steps S12' and S13'); (C) forming an audio slide comprising said slide components (*e.g.*, page 12, lines 9-22, Figures 5A and 5B); and (D) providing a textual description of the slide components as an external file such that the slide components are described sequentially (*e.g.*, page 12, line 23 to page 13, line 11, Figure 5C); wherein the textual description of the slide components includes a temporal description temporally describing each slide component and its corresponding original audio program and allowing for a bidirectional transition between the multiple original audio programs and the slide components (*e.g.*, page 9, line 20 to page 10, line 11, Figures 2B, 3 and 5B).

Claim 43

The embodiment of claim 43 is directed to a method of describing summary data of audio data (*e.g.*, page 11, lines 12-14), said method comprising: (A) identifying multiple compressed or uncompressed original audio programs (*e.g.*, page 11, lines 14-18; step S11'); (B) identifying one or more slide components which are each a reduced temporal segment from a corresponding one of said multiple compressed or uncompressed original audio programs (*e.g.*, page 11, line 22 to page 12, line 8, steps S12' and S13'); (C) forming an audio slide comprising said slide components (*e.g.*, page 12, lines 9-22, Figures 5A and 5B); (D) providing a textual description of the slide components as an external file such that the components are described sequentially (*e.g.*, page 12, line 23 to page 13, line 11, Figure 5C); and (E) displaying the description of the slide

components (e.g., page 14, lines 4-17, Figure 7), wherein the textual description of the slide components includes a temporal description temporally describing each slide component and its corresponding original audio program and allowing for a bidirectional transition between the multiple original audio programs and the slide components (e.g., page 9, line 20 to page 10, line 11, Figures 2B, 3 and 5B).

(VI) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 10, 12-14, 16-19, 21-23 and 25-57 are obvious under 35 U.S.C. §103(a) in view of Terasawa et al. (U.S. Patent No. 6,147,714) and Gagnon et al. (U.S. Patent No. 6,522,342).

(VII) ARGUMENT

I. Discussion of the cited art

a. Terasawa et al. (U.S. Patent No. 6,147,714)

In one embodiment, Terasawa discloses a data stream including a plurality of single frames from different programs. The data stream containing five single frames from different programs and a title bar is illustrated in Figure 4. The data stream illustrated in Figure 4 is superimposed on a currently-viewed program. An example of a title bar alone is illustrated in Figure 5, while an example of the data stream alone, containing five single frames, is illustrated in Figure 6. An information screen is illustrated in Figure 7 which shows the single frame, the

title bar, and program data such as the day and time of airing, the cast members, and a synopsis. Program category icons, such as those illustrated in Figure 37, and channel icons, such as those illustrated in Figure 38, may be used in the data stream.

The single frame which is displayed in the data stream illustrated in Figure 4 is generated by the single-frame generating circuit 332-1. "This single frame is targeted for presenting part of a predetermined program for promotion." Column 5, lines 13-14. Additionally, this still frame may correspond to recommended programs, promotion of program providers, etc. See column 7, lines 21-27. The content of this still frame image data is described in detail at column 9, lines 41-67.

The single-frame is a pre-selected image which is a component of the electronic program data for the electronic program guide (EPG). This single frame is likely a still frame selected from all the frames in the program. However, it is unclear how a single-frame would be obtained for a live event, such as a sporting event. It would appear that a single-frame representing a live event would not be selected from all the frames in the program, since this single frame is pre-selected. Terasawa discloses that the EPG includes three components: (i) EPG1, which includes the still picture data, (i) EPG2, which includes the text data such as title, broadcast date and time, cast and synopsis for programs in the near future, and (iii) EPG3, which includes data for programs to be aired in the distant future. The EPG data is received by the demultiplexor 24, which then stores the EPG data in the EPG area 35A of the data buffer memory 35. Column 12, line 64 to column 13, line 9; column 15, lines 14-30.

In order to obtain the data stream illustrated in Figure 4, the user presses program-table button switch (guide display operation means) 144. Accordingly, five reduced-size still frames are illustrated in a data stream on the screen, with a cursor being present over one of the frames. The user may navigate to a desired still frame. If the user presses the select button 131 while the cursor is over the desired still frame, the tuner 21 will tune to the program which is represented by the still frame selected. In such a case, it appears that the still frames will “disappear” when the tuner tunes to the new channel. On the other hand, if the user presses the information button switch 145, detailed information such as that illustrated in Figure 7 is displayed.

A more detailed embodiment of the data stream is illustrated in Figures 35, 36 and 40. The still images in the data stream may be organized by category, as in Figure 35 and 36, or by channel, as in Figure 40. In the case of Figure 35, when a data stream is brought onto the screen, initially still images from a program in each of categories B-E are illustrated.

With reference to Figure 36, a user may navigate left-to-right to select images from categories A-F, and so on. Additionally, a user may navigate up-and-down to select images from multiple programs within a single category. For instance, a user could navigate between programs 1, 2 and 3 in category B.

It is noted that Figure 35 illustrates “Future Program” being listed in category D. It is presumed that pressing the information button switch 145 while such a “Future Program” is selected would cause program information such as that illustrated in Figure 7 to be displayed. However, it is unclear what occurs if the select button 131 is pressed while such a “Future

Program” is selected. It is presumed that an error message would result, since the tuner 21 would be unable to tune to a future program.

With reference to Figure 40, a similar embodiment is illustrated, where the programs are categorized by channel. When the data stream is brought onto the screen, initially still images from the currently aired programs on channels 3-7 are displayed. The user may scroll left-to-right to view still images of currently aired programs on channels 1-7. The user may also scroll up-and-down to view still images from future programs on a desired channel.

Finally, it is noted that in some scenarios a full program guide displaying more than five still images simultaneously may be displayed. See Figure 32, which is a full program guide, as compared to Figure 33, which is a data stream. Figures 41 and 42 are also similarly comparable.

b. Gagnon et al. (U.S. Patent No. 6,522,342)

Gagnon is directed at a graphical tuning bar for a multi-program data stream. As illustrated in Figure 2A, the tuning bar 150 is used to navigate between television channels. This tuning bar 150 is contemplated to replace traditional grid-style electronic programming guides. Each position on the tuning bar 150 corresponds to a channel. In Figure 2A, the slider 372 has been tuned to the position on the tuning bar 150 which corresponds to ESPN2, on channel number 207. See also column 20, line 33 to column 21, line 4. Gagnon also discloses variations of this tuning bar 150, illustrated for example in Figure 2B. In the tuning bar 150 of Figure 2B, the channels are categorized into categories 373, 375 and 377. While the tuning bar 150 is on

screen, the central video window 142 will display the incoming video/audio programming that is currently selected by the tuner 426.

The user may change the channel selection by either (1) clicking the up and down arrows at the top and bottom of the tuning bar 150, (2) dragging the slider 372 to the desired position, (3) moving the cursor to the desired position on the tuning bar and then clicking, or (4) entering alpha-numeric data on a keyboard. Moving the slider 372 to a particular location will display a “pop-up window that display to the user the channel number and call-sign of the channel associated with that location on the channel tuning bar 150.” Column 20, lines 60-63. When a new channel is selected “the video displayed in the central video window 142, and the video title 144 are updated to correspond to the newly selected channel.” See column 21, lines 2-4. It appears that the tuning bar can be retained on-screen after the channel is changed.

II. Claims 10, 12-14, 16-19, 21-23 and 25-57 are not unpatentable under 35 U.S.C. §103(a) as being unpatentable over Terasawa in view of Gagnon.

The Examiner argues that Terasawa discloses the invention as claimed, with the exception of the textual description of the slide components including a description about a bidirectional transition between the multiple original audio/video programs and the slide components. The Examiner relies on Gagnon to provide this teaching.

a. Summary of the proposed modification of Terasawa

The proposed modification of Terasawa differs from the actual disclosure of Terasawa merely in that it allows for the retention of the “slide” of still frames after changing a channel. Such a modification would be a system in which a user watching program A presses a button which brings up a guide of, for example, five still frames selected from broadcast programs B, C, D, E and F. The user could move the cursor to highlight, for example, program C, and could optionally bring up a description of the program (*i.e.*, plot summary, actors, etc.). The user could then select program C by pressing a button, causing the tuner to change the channel to that which broadcasts program C. In this proposed modification, the guide would remain on screen. After tuning to program C, this guide would now consist of still-frames from broadcast programs B, D, E and F. It is unclear what would occupy the space formerly occupied by a still frame of program C. The user could then select another program to switch to, or could command the guide to disappear. If the user selects, for example, program B, the tuner would then change to the channel that broadcasts channel B.

In the Response filed on December 18, 2008, Appellants requested clarification as to whether (i) the Examiner agrees with the Appellants’ characterization of the proposed combination of references and disagrees with Appellant’s position as to whether the proposed combination meets the claims, or (ii) whether the Examiner disagrees with the Appellants’ characterization of the proposed combination of references entirely. On page 6 of the Office Action dated March 16, 2009, the Examiner appeared to disagree with this description of the proposed modification of Terasawa, but refused to provide clarification or point out any errors.

Rather, it is stated that on page 6 that “the examiner answered all of these arguments previously and invites the applicant to look at previous response to arguments.” However, previous responses to Appellants’ remarks provide no clarification on this matter.

In the Response filed on May 13, 2009, Appellants again requested clarification by stating that if the above is not how the proposed modification of Terasawa contemplated by the Examiner is asserted to work, a clear and explicit discussion about how the proposed modification is asserted to work was requested, preferably using an example similar to that discussed above. In the Office Action dated August 5, 2009, the Examiner essentially states on pages 4-5 that if a user first selects the still frame of program A (resulting in tuning to the actual program A) and then selects the still frame of program B (resulting in tuning to the actual program B), then this qualifies as “a bidirectional transition between the multiple original audio/video programs and the slide components.” As such, it appears that the Appellants and the Examiner agree as to the nature of the proposed modification of Terasawa, but that there remains a controversy as to whether this proposed modification meets the claims. As such, the rejection is discussed on the merits below.

b. Gagnon is not relevant to the claims and thus should not be combined with Terasawa

First, Appellants respectfully argue that it is improper to combine Terasawa and Gagnon. As discussed above, the “slide” of Terasawa is a series of still frames, each taken from a full-length program. Meanwhile, the so-called “slide” of Gagnon is simply a list of channels. In

fact, in the Office Action dated August 22, 2008, the Examiner acknowledged that “a slide component in Gagnon is not a segment. Gagnon discloses slide components as channel data.” Furthermore, Appellants note that in addition to the fact that the content of the so-called “slide” in Gagnon is not a series of shortened segments of programs, the content of the so-called “slide” in Gagnon does not represent a program at all. In Gagnon, a user does not select “a program.” Rather, a user selects a channel. As illustrated in Figure 2B, the slider includes listing of channels such as “ESPN-207.” The slider does not include a listing of programs, such as “Monday Night Football.”

In view of this, Appellants respectfully argue that the so-called “slide” of Gagnon is irrelevant to the pending claims, since it does not disclose a “slide” as defined by the claims. The claims require that the slide comprises “one or more slide components which are each a reduced temporal segment from a corresponding one of said multiple compressed or uncompressed original audio/video programs.” In other words, since the so-called “slide” of Gagnon is not a series of shortened segments of programs, it is absolutely irrelevant to the pending claims. Furthermore, it would not have been obvious to combine the so-called “slide” of Gagnon with the subject matter of Terasawa. Appellants respectfully submit that these so-called “slides” (a “slide” of still frames of programs, and a so-called “slide” of channel names/numbers) are not compatible with each other. Therefore, one having ordinary skill in the art would see no reason to combine such dissimilar “slides.” Therefore, Gagnon should not be combined with a reference which teaches as “slide” comprised of a series of still frames.

c. The combination of cited art does not disclose or suggest the embodiments of independent claims 10 and 19

Next, Appellants respectfully argue that even if Terasawa and Gagnon are combined, the combination of these references still does not disclose or suggest the subject matter of independent claims 10 and 19. The rejection of the claims based on Terasawa and Gagnon was first presented in the Office Action dated January 16, 2008. On April 15, 2008, Appellants' representative conducted a personal interview with the Examiner and her supervisor. In this interview, Appellants' representative attempted to clarify which element of each of Terasawa and Gagnon were regarded as the original audio/video content and the slide components. In Terasawa, the Examiners were of the position that the element of Terasawa analogous to the original audio/video content was the broadcasted content, and that the element of Terasawa analogous to the slide components were the still frames illustrated in the alleged "slider." Meanwhile, in Gagnon, the Examiners were of the position that the element of Terasawa analogous to the original audio/video content was the broadcasted content, and that the element of Terasawa analogous to the slide components as the channel data (e.g., In Figure 2: ESPN2-Channel 207). The Examiners acknowledged that the concept of the slide component being a segment of the audio/video content was not present in Gagnon.

The main controversy in the rejection of independent claims 10 and 19 is whether the combination of Terasawa and Gagnon discloses or suggests a bidirectional transition as claimed. For example, claim 10 requires that:

the textual description of the slide components includes a temporal description temporally describing each slide component and its corresponding original audio/video program and allowing for a **bidirectional transition** between the multiple original audio/video programs and the slide components. (emphasis added).

The Examiner acknowledges that Terasawa does not disclose this. See, for example, August 5, 2009 Office Action, page 9. However, the Examiner is of the position that Gagnon discloses this feature, and thus that the combination of Terasawa and Gagnon teaches the embodiments as claimed. As to the bidirectional transition allegedly being disclosed in Gagnon, the Examiners' position relies on the fact that that the "slide" in Gagnon does not disappear when the user tunes to a first new station, unlike in Terasawa—rather, it stays "on screen" during and after this switching. Thus, the Examiner concludes that switching from a current broadcast channel to a first new broadcast channel and then to a second new broadcast channel is a "bidirectional transition." This was most recently confirmed in the Office Action dated August 5, 2009, on pages 4-5.

However, Appellants respectfully submit that Gagnon does not disclose or suggest the alleged "bidirectional transition." Gagnon does not disclose a "bidirectional transition," but rather discloses a series of unidirectional transitions. To further illustrate this point, Appellants previously submitted the following dictionary definition of the word "bidirectional," which is attached hereto in the evidence appendix:

Bidirectional: Being directionally responsive to inputs in two opposite directions

McGraw-Hill Dictionary of Scientific and Technical Terms, Sixth Edition (2003)

As illustrated in Figure 5, for example, the claimed embodiments include a transition in two opposite directions (*e.g.*, arrow “p” and arrows “q”).

Even if, *arguendo*, the tuning bar 150 or slider 372 of Gagnon is broadly considered a “slide,” a transition from this tuning bar 150 to the programming would only be a unidirectional transition, not a bidirectional transition. Gagnon only allows for a series of unidirectional transitions between the tuning bar and live video (*i.e.*, selection of a channel in the slider and subsequent tuning to that channel). Selection of a new channel results in tuning to this new channel, and the video being displayed in the video window 142. There is no way to provide a transition in the opposite direction. Rather, the user must repeatedly perform a transition in the tuning bar-to-video window direction in order to change channels. Additionally illustrating the error in the rejection is the fact that under the Examiners’ reasoning, Gagnon would disclose a “tridirectional” link if a user switches to a third new channel, a “quadridirectional” link if a user switches to a fourth new channel, etc.

Furthermore, Appellants respectfully submit that the teachings of Gagnon are essentially duplicative of the teachings of Terasawa. In other words, both Terasawa and Gagnon disclose a unidirectional transition. The Examiner attaches significance to the fact that the slider in Gagnon does not necessarily disappear when the user tunes to a first new station, unlike in Terasawa. However, the fact that the user does not need to press an additional button in Gagnon to view the channel slider does not render the subject matter of Gagnon a bidirectional transition. In Terasawa, the transition between the still frame and the video is unidirectional. Likewise, in

Gagnon, the transition between the position corresponding to a specific channel and the video is unidirectional.

If Terasawa and Gagnon are combined, the result would not meet the claims. As discussed above, such a combination would be a system in which a user watching program A presses a button which brings up a guide of, for example, five still frames selected from broadcast programs B, C, D, E and F. The user could move the cursor to highlight, for example, program C, and could optionally bring up a description of the program (i.e., plot summary, actors, etc.). The user could then select program C by pressing a button, causing the tuner to change the channel to that which broadcasts program C. In this proposed combination, the guide would remain on screen. After tuning to program C, this guide would now consist of still-frames from broadcast programs B, D, E and F. It is unclear whether the still frame formerly occupied by a still frame of program C would now be occupied by a still frame of program A, another program, or a blank space. The user could then select another program to switch to, or could command the guide to disappear.

Appellants argue that the proposed combination of Terasawa and Gagnon would not include a bidirectional transition between a program and slide components, but rather would merely include a unidirectional still-frame-to-program transitions. A bidirectional transition as claimed requires both (i) slide-to-program and (ii) a program-to-slide transition. In the proposed modification of Terasawa, it is clearly possible to “click on” a still frame in order to transition to a program. This is transition in the slide-to-program direction. However, in the proposed modification of Terasawa, it is not possible to “click on” the program in the main screen to bring

up a still frame thereof, or anything else for that matter. If it were possible, this would be a program-to-slide direction. However, such a transition is not possible in the proposed modification of Terasawa. Rather, this proposed modification includes a first slide-to-program transition (*i.e.*, still frame C to program C) and a second slide-to-program transition (*i.e.*, still frame B to program B). This proposed modification of Terasawa does not include a bidirectional transition (*i.e.*, still frame C to program C and program C to still frame C).

In response to Appellants' most recently filed remarks, the Examiner states in the Office Action dated August 5, 2009 that it is unclear why a bidirectional transition between multiple original audio/video programs and the slide components "would require selecting still frame C to program C and program C to still frame C."

First, Appellants note that the Examiner italicized the word "multiple." See page 4 of the August 5, 2009 Office Action. It is unclear why the Examiner did this. Additionally, Appellants note that while the Examiner's statement is not inconsistent with Appellants' position, it is not exactly accurate. The claims do not require that the bidirectional transition is between the same program and slide component in both directions (*i.e.*, slide component C to program C and program C to slide component C). Rather, the bidirectional transition can also be between different programs and slide components (*i.e.*, slide component B to program B and program C to slide component C). An example of this would be where the user transitioned from the slide component B to the program B, then watched or listened to the entire program B. The program C may automatically start playing after program B is completed. If the user did not want to watch or listen to program C, the user might select a transition to slide component C, so that the user

can quickly play other slide components D, E, etc. This allows a user to rapidly review the contents of the programs. Simply put, Appellants respectfully argue that the claims 10 and 19 at least require transition (i) in the slide component to original program direction, and (ii) in the original program to slide component direction. The combination of cited art does not disclose or suggest this subject matter.

As to why the claims require this configuration, Appellants refer to the above-discussed definition of the word “bidirectional.” As noted above, “bidirectional” means “being directionally responsive to inputs in two opposite directions” (emphasis added). A transition from (1) a still frame A to a program A, and then (2) from a still frame B to a program B are not transitions in opposite directions. These two transitions are merely two separate transitions in the same direction. In order to meet the claims, the combination of cited art would have to disclose a transition from (1) any still frame to a corresponding program and (2) from any program to a corresponding still frame. Of course, the combination of cited art only discloses a transition from a still frame to a corresponding program. However, the combination of cited art does not disclose a transition from a program to a corresponding still frame. Therefore, for at least these reasons, Appellants respectfully submit that the combination of cited art does not disclose or suggest the subject matter of claims 10 and 19.

d. The combination of cited art does not disclose or suggest the embodiments of dependent claims 28-33

Claims 28 and 29 more specifically recite the contents of the temporal description. As in the independent claims, the temporal description of claims 28 and 29 allows for at least two types of transitions: (i) in a slide-to-original-program direction, and (ii) in an original-program-to-slide direction. Claims 28 and 29 further recite that the temporal description (i) allows for a transition from each slide to the beginning of the corresponding original programming. See, for example, in Figure 5, the transition from SONG 2_SUM transitions to the beginning of SONG 2 via arrow “p.” Additionally, the claims recite that the temporal description (ii) allows for a transition from the each original program to the beginning of the slide component which is a reduced temporal segment of the next original program. See, for example, in Figure 5, the transition from SONG 2 to the beginning of SONG 3_SUM (which is a reduced temporal segment of SONG 3) via arrow “q.” In both of Terasawa and Gagnon, transition is only possible to the “live” broadcast which is currently being received. It is not possible to transition to the beginning of a program, and also is not possible to transition to a segment of a sequentially next program.

However, the Examiner has alleged that the combination of references discloses this subject matter. As to the first clause of these claims, the Office Action dated August 22, 2008 states that if a user clicks on the still frame of a program at the exact time that the program begins, this will result in a transition to the beginning of the program. As to the second clause of these claims, the Examiner’s interpretation is less clear. Referring to Figure 8 as an example, it appears that the Examiner states that if a user is watching a 7pm-8:30pm program (World News)

on a given channel, the transition to the beginning of the slide component of the next program is encompassed by the display of the next program on the same channel, such as an 8:30pm-9:30pm program (World Sport).

In response, Appellants argue that Terasawa does not disclose these limitations, particularly the “original-program-to-beginning-of-next-slide-component” aspect of these claims. When the “World News” program ends, the “World Sport” program begins. Thus, this transition would be an original-program-to-original-program transition. Terasawa does not disclose that still frames from the presently viewed channel are displayed in the “slide.” Thus, with the example given by the August 22, 2008 Office Action, if a user is watching “World News” on CNN in the main display, still frames of other CNN programs such as “World Sport” or “Money” will never be displayed in the “slide.” Accordingly, Appellants argue that the combination of Terasawa and Gagnon does not disclose or suggest the embodiment of claims 28 and 29.

Furthermore, claims 30-33 further recite that the slide components are sequentially or non-sequentially playable. As illustrated, for example, in Figure 5, the user may play SONG 1_SUM, SONG 2_SUM, and SONG 3_SUM sequentially. The user may optionally also play these songs non-sequentially. It is not possible to “play” the alleged slide components of Terasawa and Gagnon, whether sequentially or non-sequentially. In Gagnon, the alleged slide components are not media, but are only listing of channel data. Thus, it is impossible to “play” this sequentially or otherwise. As for Terasawa, it is only contemplated that the single-frame images are displayed simultaneously. There is no disclosure or suggestion of “playing” these still frames, sequentially or non-sequentially. In other words, it is not contemplated to create a

composite “movie” of the still frame images and to play them in any order. Thus, Appellants argue that new claims 30-33 are patentable over the cited art.

Therefore, Appellants respectfully submit that the combination of cited art does not disclose or suggest the subject matter of claims 10, 12-14, 16-19, 21-23 and 25-35. Favorable reconsideration is respectfully requested.

e. The combination of cited art does not disclose or suggest the embodiments of claims 36-57

In the Amendment of December 18, 2008, Appellants added new claims 36-57 which recite only “audio data,” rather than “at least one of audio data, video data, and audiovisual data.” First of all, Appellants respectfully submit that these claims are patentable at least due to similar reasons as the corresponding audio/video data claims, discussed above. Appellants explain further reasons why these claims are patentable over the cited art below.

As to claims 36-57, the Office Action dated February 19, 2009 stated that an original audio program can be interpreted as a music program, and that a still frame of such a music program would meet the requirements of the claims. Appellants were puzzled by these comments, and contacted the Examiner in order to obtain greater clarification. After a few minutes of discussion, it was explained that the claimed “audio program” was being interpreted as including a program about the subject of music. In other words, the claimed subject matter was being interpreted such that video of a concert would be considered a “music program,” which was regarded as being analogous to the recited “audio program.” Further, a video still

frame of such a concert was being regarded as a reduced temporal segment of a “music program.” Thus, it was concluded that a video still frame of concert video is a reduced temporal segment of an audio program.

It was further explained that a slide formed of three still frames from three different concerts or music videos was regarded as being equivalent to the recited “audio slide comprising said slide components.” However, in contrast, at this point in prosecution, a slide formed of three still frames from three different sports events was not regarded as being equivalent to the recited “audio slide comprising said slide components.” In other words, the reasoning in the Office Action dated December 18, 2008 was “content-dependent.” In the Office Action dated August 5, 2009, the Examiner essentially maintained her position, and expanded it slightly. Where the Examiner previously argued that a television program that deals with music as the subject matter is “an original audio program,” the Examiner now states that “other programming such as sports programs could be considered audio programs.”

In response, Appellants respectfully submit that this position relies on an unreasonable interpretation of the claim language, in particular of the term “audio slide.” Even if, *arguendo*, a program such as a concert video was considered an “original audio program,” and a still frame of such a concert video were regarded as a reduced temporal segment of such an “original audio program,” the combination of cited art would *still* not disclose or suggest the embodiment as claimed. The claims also require “forming an audio slide.” Since the adjective “audio” modifies the noun “slide,” the claim requires that the slide must have sound. If the components of the

slide are still frames, then there is no sound associated with the slide. The Office Action dated August 5, 2009 fails to address this point.

The Federal Circuit's *en banc* decision in *Phillips v. AWH Corp.*, 415 F.3d 1303, 75 USPQ2d 1321 (Fed. Cir. 2005) expressly recognized the proper standard of claim interpretation:

The Patent and Trademark Office ("PTO") determines the scope of claims in patent applications not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction "in light of the specification as it would be interpreted by one of ordinary skill in the art." *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004).

Additionally, the broadest reasonable interpretation of the claims must also be consistent with the interpretation that those skilled in the art would reach. *In re Cortright*, 165 F.3d 1353, 1359, 49 USPQ2d 1464, 1468 (Fed. Cir. 1999). See MPEP §2111.

Appellants herewith provide the following definitions of the word "audio":

- Audio:**
1. Of or pertaining to sound in the range of frequencies considered audible at reasonable listening intensities to the average young adult listener, approximately 15 to 20,000 hertz.
 2. Pertaining to equipment for the recording, transmission, reproduction or amplification of such sound.

McGraw-Hill Dictionary of Scientific and Technical Terms, Sixth Edition (2003)

- Audio: Adjective:**
1. Of or relating to humanly audible sound
 - 2a. Of or relating to the broadcasting or reception of sound.
 - 2b. Of or relating to high-fidelity sound reproduction.

- Noun:**
1. The part of television or motion-picture equipment that has to do with sound.
 2. The broadcast, reception or reproduction of sound.
 3. Audible sound.
 4. A sound signal.

The American Heritage Dictionary of the English Language, Third Edition (1996)

All of the above definitions include the word “sound.” Thus, it is clear that an “audio program” as recited must include sound. More importantly, it is clear that a reduced temporal segment of an “audio program” must include sound. Most importantly, it is clear that an “audio slide” must include sound. Additionally, it is noted that the specification refers to audio and video data as it relates to MPEG-7. In particular, the background of the specification explains that the conventional slides do not allow for browsing of “the audio portion of audiovisual data, or the music data as data of audio only.” See page 4, lines 13-14.

Under the Examiner’s interpretation of the claims, “audio programs” can include, for example, footage from concerts, sports programs, etc. Further, under the Examiner’s interpretation, slide component can be a silent, still-frame image derived from this concert footage. Finally, under the Examiner’s interpretation, “an audio slide” can be a series of silent still frames.

However, such a slide of still-frames cannot be “an audio slide comprising said slide components,” regardless of the subject matter of the program from which they are derived (concert, sports, etc). Such a slide would be silent—no sound would be produced upon the processing of the data of this slide. Essentially, such a slide would merely be a series of photographs. In view of the definitions above, the discussion about MPEG-7 in the specification, and the fact the claims recite a method of describing audio data, the Examiner’s interpretation of claims 36-57 is absolutely inconsistent with the interpretation that would be reached by one having ordinary skill in the art. One having ordinary skill in the art of software engineering of

multimedia content browsing systems would interpret the word “audio” as a description of data type (*i.e.*, data encoding sound vs. data encoding images, text, etc.).

Since the term “audio” must be interpreted as relating to sound, the “audio slide” must be comprised of data which encodes sound. This “audio slide” need not encode music necessarily—for example, the “audio” could also be spoken word, such as an audiobook or a famous broadcast. Terasawa discloses in Figure 1 a main program (which would presumably include audio) and a “slide” made up of five still frames from other programs. However, these still frames would presumably lack audio.

Furthermore, it would not have been obvious to modify the combination of Terasawa and Gagnon to include still frames with audio, to create an “audio slide.” Terasawa discloses a situation where the main program and a still frame from another program are simultaneously displayed, somewhat like a “Picture-in-Picture” format. However, it would not have been obvious to add audio to the still frames, because the simultaneous play of multiple audio streams is confusing and uncomfortable for a user.

Finally, Appellants address the Examiner’s comments from the last two paragraphs of page 6 to the first two paragraphs of page 7 in the most recent Office Action. It appears that the Examiner might be of the position that Appellants’ arguments require reading limitations from the specification into the claims. Specifically, the Examiner cites a passage of the specification which states that:

“nothing is specified about the sequential description of the element corresponding to the key frame (for example, key audio clip).” See page 4, lines 14-16.

However, the passage cited by the Examiner merely describes the shortcomings of the conventional art as compared with the present invention. There is no reason why this “feature” should be read into the claims, and Appellants do not wish for such a feature to be read into the claims. In fact, the claim 36, for example, specifically recites otherwise, since “the textual description of the slide components includes a temporal description temporally describing each slide component and its corresponding original audio program.” Thus, this statement by the Examiner does not make any sense. As to the statement that “the examiner would need to search and/or consider this limitation in view of the current limitations and art,” this recitation was not newly added to the claims—rather, it has been present in the claims for several Office Actions.

Additionally, the Examiner states that “[t]he applicants also disclose that it would not have been obvious to add audio to still frame from another program simultaneously displayed in a PIP format,” referring to page 23 of the previously filed remarks. This statement appears to be entirely unrelated to the sentences surrounding it. Thus, it is unclear why the Examiner refers to this argument at this point. This argument related to the lack of a reason why it would not have been obvious to modify the combination of cited art to result in the claimed embodiment. Since the Examiner is of the position that the combination of cited art discloses the embodiments as claimed (without further modification), it is unclear why the Examiner even mentions this point.

Therefore, for at least the above reasons, Appellants respectfully submit that the combination of cited art does not disclose or suggest the subject matter of claims 36-57. Favorable reconsideration is respectfully requested.

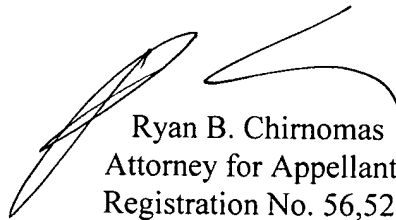
(VIII) CONCLUSION

For at least the above reasons, Appellants respectfully argue that claims 10, 12-14, 16-19, 21-23 and 25-57 are not obvious under 35 U.S.C. §103(a) in view of Terasawa et al. (U.S. Patent No. 6,147,714) and Gagnon et al. (U.S. Patent No. 6,522,342). The Honorable Board is respectfully requested to reverse the rejection of the Examiner.

If this paper is not timely filed, appellants hereby petition for an appropriate extension of time. The fee for any such extension may be charged to Deposit Account No. 50-2866, along with any other additional fees that may be required with respect to this paper.

Respectfully submitted,

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RBC/nrp

(IX) CLAIMS APPENDIX

10. A method of describing summary data of at least one of audio data, video data, and audiovisual data (hereinafter called audio/video), said method comprising:

(A) identifying multiple compressed or uncompressed original audio/video programs;

(B) identifying one or more slide components which are each a reduced temporal segment from a corresponding one of said multiple compressed or uncompressed original audio/video programs;

(C) forming an audio/video slide comprising said slide components;

(D) providing a textual description of the slide components as an external file such that the slide components are described sequentially;

wherein the textual description of the slide components includes a temporal description temporally describing each slide component and its corresponding original audio/video program and allowing for a bidirectional transition between the multiple original audio/video programs and the slide components.

12. The method of describing summary data of audio/video of claim 10,

wherein the reduced temporal segment is a separate file, and a set of files is described sequentially.

13. The method of describing summary data of audio/video of claim 10,

wherein a set of reduced temporal segments is integrated as one composite file, and the individual reduced temporal segments of the composite file are described sequentially.

14. The method of describing summary data of audio/video of claim 10,

wherein the textual description allowing for the bidirectional transition between the original programs and the slide components further includes a description about an identifier of the original programs to which the slide components correspond.

16. A browsing method comprising:

describing summary data of audio/video according to the method of claim 10,

wherein it is possible to transfer from playback of the audio/video slide to playback of the original audio/video programs relating to the slide components of the audio/video slide, and it is also possible to transfer reversely from playback of original audio/video programs to playback of the audio/video slide.

17. A browsing method comprising:

describing summary data of audio/video according to the method of claim 10,

wherein it is possible to display attribute data describing the corresponding original audio/video programs by using description data of audio/video slide components during playback of an audio/video slide.

18. A browsing method comprising:

describing summary data of audio/video according to the method of claim 10,
wherein corresponding original audio/video programs is played by using description data of the audio/video slide components during playback of an audio/video slide.

19. A method of describing summary data of at least one of audio data, video data, and audiovisual data (hereinafter called audio/video), said method comprising:

- (A) identifying multiple compressed or uncompressed original audio/video programs;
 - (B) identifying one or more slide components which are each a reduced temporal segment from a corresponding one of said multiple compressed or uncompressed original audio/video programs;
 - (C) forming an audio/video slide comprising said slide components;
 - (D) providing a textual description of the slide components as an external file such that the components are described sequentially; and
 - (E) displaying the description of the slide components,
- wherein the textual description of the slide components includes a temporal description temporally describing each slide component and its corresponding original audio/video program and allowing for a bidirectional transition between the multiple original audio/video programs and the slide components.

21. The method of describing summary data of audio/video of claim 19,

wherein the reduced temporal segment is a separate file, and a set of files is described sequentially.

22. The method of describing summary data of audio/video of claim 19,

wherein a set of reduced temporal segments is integrated as one composite file, and the individual reduced temporal segments of the composite file are described sequentially.

23. The method of describing summary data of audio/video of claim 19,

wherein the textual description allowing for the bidirectional transition between the original programs and the slide components further includes a description about an identifier of the original programs to which the slide components correspond.

25. A browsing method comprising:

describing summary data of audio/video according to the method of claim 19,

wherein it is possible to transfer from playback of the audio/video slide to playback of the original audio/video programs relating to the slide components of the audio/video slide, and it is also possible to transfer reversely from playback of original audio/video programs to playback of the audio/video slide.

26. A browsing method comprising:

describing summary data of audio/video according to the method of claim 19,

wherein it is possible to display attribute data describing the corresponding original audio/video programs by using description data of audio/video slide components during playback of an audio/video slide.

27. A browsing method comprising:

describing summary data of audio/video according to the method of claim 19,
wherein corresponding original audio/video programs is played by using description data of the audio/video slide components during playback of an audio/video slide.

28. A browsing method comprising:

describing summary data of audio/video according to the method of claim 10,
wherein said temporal description allows for a transition from each slide component to a beginning of each corresponding original audio/video program of which each slide component is a reduced temporal segment, and

wherein said temporal description allows for a transition from each original audio/video program to a beginning of each slide component which is a reduced temporal segment of each sequentially next original audio/video program.

29. A browsing method comprising:

describing summary data of audio/video according to the method of claim 19,

wherein said temporal description allows for a transition from each slide component to a beginning of each corresponding original audio/video program of which each slide component is a reduced temporal segment, and

wherein said temporal description allows for a transition from each original audio/video program to a beginning of each slide component which is a reduced temporal segment of each sequentially next original audio/video program.

30. The method of describing summary data of audio/video of claim 10, wherein said slide components are sequentially playable.

31. The method of describing summary data of audio/video of claim 10, wherein said slide components are non-sequentially playable.

32. The method of describing summary data of audio/video of claim 19, wherein said slide components are sequentially playable.

33. The method of describing summary data of audio/video of claim 19, wherein said slide components are non-sequentially playable.

34. The method of describing summary data of audio/video of claim 10, wherein said slide comprises at least one segment from each of said multiple compressed or uncompressed original audio/video programs.

35. The method of describing summary data of audio/video of claim 19, wherein said slide comprises at least one segment from each of said multiple compressed or uncompressed original audio/video programs.

36. A method of describing summary data of audio data, said method comprising:

- (A) identifying multiple compressed or uncompressed original audio programs;
- (B) identifying one or more slide components which are each a reduced temporal segment from a corresponding one of said multiple compressed or uncompressed original audio programs;
- (C) forming an audio slide comprising said slide components;
- (D) providing a textual description of the slide components as an external file such that the slide components are described sequentially;

wherein the textual description of the slide components includes a temporal description temporally describing each slide component and its corresponding original audio program and allowing for a bidirectional transition between the multiple original audio programs and the slide components.

37. The method of describing summary data of audio of claim 36,

wherein the reduced temporal segment is a separate file, and a set of files is described sequentially.

38. The method of describing summary data of audio of claim 36,

wherein a set of reduced temporal segments is integrated as one composite file, and the individual reduced temporal segments of the composite file are described sequentially.

39. The method of describing summary data of audio of claim 36,

wherein the textual description allowing for the bidirectional transition between the original programs and the slide components further includes a description about an identifier of the original programs to which the slide components correspond.

40. A browsing method comprising:

describing summary data of audio according to the method of claim 36,

wherein it is possible to transfer from playback of the audio slide to playback of the original audio programs relating to the slide components of the audio slide, and it is also possible to transfer reversely from playback of original audio programs to playback of the audio slide.

41. A browsing method comprising:

describing summary data of audio according to the method of claim 36,

wherein it is possible to display attribute data describing the corresponding original audio programs by using description data of audio slide components during playback of an audio slide.

42. A browsing method comprising:

describing summary data of audio according to the method of claim 36,

wherein corresponding original audio programs is played by using description data of the audio slide components during playback of an audio slide.

43. A method of describing summary data of audio data, said method comprising:

(A) identifying multiple compressed or uncompressed original audio programs;

(B) identifying one or more slide components which are each a reduced temporal segment from a corresponding one of said multiple compressed or uncompressed original audio programs;

(C) forming an audio slide comprising said slide components;

(D) providing a textual description of the slide components as an external file such that the components are described sequentially; and

(E) displaying the description of the slide components,

wherein the textual description of the slide components includes a temporal description temporally describing each slide component and its corresponding original audio program and allowing for a bidirectional transition between the multiple original audio programs and the slide components.

44. The method of describing summary data of audio of claim 43,

wherein the reduced temporal segment is a separate file, and a set of files is described sequentially.

45. The method of describing summary data of audio of claim 43,

wherein a set of reduced temporal segments is integrated as one composite file, and the individual reduced temporal segments of the composite file are described sequentially.

46. The method of describing summary data of audio of claim 43,

wherein the textual description allowing for the bidirectional transition between the original programs and the slide components further includes a description about an identifier of the original programs to which the slide components correspond.

47. A browsing method comprising:

describing summary data of audio according to the method of claim 43,

wherein it is possible to transfer from playback of the audio slide to playback of the original audio programs relating to the slide components of the audio slide, and it is also possible to transfer reversely from playback of original audio programs to playback of the audio slide.

48. A browsing method comprising:

describing summary data of audio according to the method of claim 43,

wherein it is possible to display attribute data describing the corresponding original audio programs by using description data of audio slide components during playback of an audio slide.

49. A browsing method comprising:

describing summary data of audio according to the method of claim 43,
wherein corresponding original audio programs is played by using description data of the audio slide components during playback of an audio slide.

50. A browsing method comprising:

describing summary data of audio according to the method of claim 36,
wherein said temporal description allows for a transition from each slide component to a beginning of each corresponding original audio program of which each slide component is a reduced temporal segment, and

wherein said temporal description allows for a transition from each original audio program to a beginning of each slide component which is a reduced temporal segment of each sequentially next original audio program.

51. (Previously Presented) A browsing method comprising:

describing summary data of audio according to the method of claim 43,

wherein said temporal description allows for a transition from each slide component to a beginning of each corresponding original audio program of which each slide component is a reduced temporal segment, and

wherein said temporal description allows for a transition from each original audio program to a beginning of each slide component which is a reduced temporal segment of each sequentially next original audio program.

52. The method of describing summary data of audio of claim 36, wherein said slide components are sequentially playable.

53. The method of describing summary data of audio of claim 36, wherein said slide components are non-sequentially playable.

54. The method of describing summary data of audio of claim 43, wherein said slide components are sequentially playable.

55. The method of describing summary data of audio of claim 43, wherein said slide components are non-sequentially playable.

56. The method of describing summary data of audio of claim 36, wherein said slide comprises at least one segment from each of said multiple compressed or uncompressed original audio programs.

57. The method of describing summary data of audio of claim 43, wherein said slide comprises at least one segment from each of said multiple compressed or uncompressed original audio programs.

(X) EVIDENCE APPENDIX

- (1) Dictionary definition of “bidirectional” from *McGraw-Hill Dictionary of Scientific and Technical Terms*, Sixth Edition (2003).
- (2) Dictionary definition of “audio” *McGraw-Hill Dictionary of Scientific and Technical Terms*, Sixth Edition (2003).
- (3) Dictionary definition of “audio” from *The American Heritage Dictionary of the English Language*, Third Edition (1996).

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Art Unit: 2424

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Attorney Docket No.: 010661

(XI) RELATED PROCEEDINGS APPENDIX

n/a

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isthmus of northwest North Island. It is a major port and an industrial center. Metropolitan area population, 860,000.

au cou·rant (ô' kôo-rân') *adj.* 1. Informed on current affairs; up-to-date. 2. Fully familiar; knowledgeable. [French: *au*, in the + *courant*, current.]

au·ction (ôk'shan) *n.* 1. A public sale in which property or items of merchandise are sold to the highest bidder. 2. Games. a. The bidding in bridge. b. Auction bridge. — **au·ction tr.v.** -tioned, -tion-ing, -tions. To sell at or by an auction: *au·ctioned off the remaining inventory.* [Latin *auctio*, *auctiôn-*, from *auctus*, past participle of *augere*, to increase. See **aug-** in Appendix.]

au·ction bridge *n.* Games. A variety of bridge in which tricks made in excess of the contract are scored toward game.

au·ction·eer (ôk'sha-nîr') *n.* One that conducts an auction. — **au·ctioneer tr.v.** -eered, -eer-ing, -eers. To sell at auction.

au·c·to·ri·al (ôk-tôr'ê-âl, -tôr'-) *adj.* Of or relating to an author. [From Latin *auctor*, author. See **AUTHOR**.]

au·cu·ba (ô'kya-bâ) *n.* Any of several eastern Asian evergreen shrubs of the genus *Aucuba*, especially *A. japonica*, grown as an ornamental chiefly for its glossy, leathery leaves. [New Latin: possibly from Japanese *auku*, green + Japanese *ba*, leaved.]

aud. *abbr.* 1. Audit; auditor. 2. Audition.

au·da·cious (ô-dâ'shas) *adj.* 1. Fearlessly, often recklessly daring; bold. See Synonyms at **adventurous**, **brave**. 2. Unrestrained by convention or propriety; insolent. 3. Spirited and original: *an audacious interpretation of two Jacobean dramas.* [French *audacieux*, from Old French *audace*, boldness, from Latin *audacia*, from *audâx*, *audâc-*, bold, from *audere*, to dare, from *avidus*, avid. See **AVID**.] — **au·da·cious·ly** *adv.* — **au·da·cious·ness** *n.*

au·dac·i·ty (ô-dâs'i-tê) *n., pl. -ties.* 1. Fearless daring; intrepidity. 2. Bold or insolent heedlessness of restraints, as of those imposed by prudence, propriety, or convention. See Synonyms at **temerity**. 3. An act or instance of intrepidity or insolent heedlessness.

Au·den (ôd'n), **W(ystan) H(ugh).** 1907–1973. British-born American writer and critic whose poems, published in collections such as *The Dance of Death* (1933) and *The Double Man* (1941), established his importance in 20th-century literature.

au·di·al (ô'dê-âl) *adj.* Of or relating to the sense of hearing; aural. [AUDI(O)- + -AL¹.]

au·di·ble (ô'dâ-bal) *adj.* That is heard or that can be heard. — **audible n.** Football. A new or substitute offensive play called by the quarterback or a defensive formation called by a linebacker at the line of scrimmage as an adjustment to the opposing side's formation. Also called *automatic*. [Late Latin *audibilis*, from Latin *audire*, to hear. See **au-** in Appendix.] — **au·di·bil·i·ty** *n.* — **au·di·ble·ness** *n.* — **au·di·bly** *adv.*

au·di·ence (ô'dê-âns) *n.* 1. a. The spectators or listeners assembled at a performance, for example, or attracted by a radio or television program. b. The readership for printed matter, as for a book. 2. A body of adherents; a following: *The tenor expanded his audience by recording popular songs as well as opera.* 3. A formal hearing, as with a religious or state dignitary. 4. An opportunity to be heard or to express one's views. 5. The act of hearing or attending. [Middle English, from Old French, from Latin *audientia*, from *audîens*, present participle of *audire*, to hear. See **au-** in Appendix.]

au·dile (ô'dîl') *adj.* 1. Capable of learning chiefly from auditory, rather than tactile or visual, stimuli. 2. Auditory. — **audile n.** An audile person. [From Latin *audire*, to hear. See **au-** in Appendix.]

au·di·o (ô'dê-ô') *adj.* 1. Of or relating to humanly audible sound. 2. a. Of or relating to the broadcasting or reception of sound. b. Of or relating to high-fidelity sound reproduction. — **audio n., pl. -di·os.** 1. The part of television or motion-picture equipment that has to do with sound. 2. The broadcasting, reception, or reproduction of sound. 3. Audible sound. 4. A sound signal. [From AUDIO-.]

audio- *pref.* 1. Hearing: *audio-lingual*. 2. Sound: *audiophile*. [From Latin *audire*, to hear. See **au-** in Appendix.]

audio book *n.* A taped reading of a book or book condensation reproduced in cassette form.

au·di·o·cas·sette (ô'dê-ô-ka-sêt', -kâ-) *n.* 1. A cassette containing blank or prerecorded audiotape. 2. A tape recording reproduced in cassette form.

audio frequency *n.* *Abbr.* **AF** A range of frequencies, usually from 15 hertz to 20,000 hertz, characteristic of signals audible to the normal human ear.

au·di·o·gram (ô'dê-ô-grâm') *n.* A graphic record of hearing ability for various sound frequencies that is used to measure hearing loss.

au·di·o·lin·gual (ô'dê-ô-lîng'gwâl) *adj.* Relating to or involving a system of language acquisition that focuses intensively on listening and speaking.

au·di·ol·o·gy (ô'dê-ô-lî'ô-jê) *n.* The study of hearing, especially hearing defects and their treatment. — **au·di·o·log·i·cal** (-ô-lôj'i-kâl) *adj.* — **au·di·ol·o·gist** *n.*

au·di·om·e·ter (ô'dê-ô-m'i-târ) *n.* An instrument for measuring hearing activity for pure tones of normally audible frequencies. Also called *sonometer*. — **au·di·o·met·ric** (-ô-mêt'rifk) *adj.* — **au·di·om·e·try** *n.*

au·di·o·phile (ô'dê-ô-fîl') *n.* A person having an ardent interest in stereo or high-fidelity sound reproduction.

au·di·o·tape (ô'dê-ô-tâp') *n.* 1. A relatively narrow magnetic tape used to record sound for subsequent playback. 2. A tape recording of sound. — **audiotape tr.v.** -taped, -tap-ing, -tapes. To record (sound) on magnetic tape: *audiotaped the interview for replay on radio.*

au·di·o·typ·ing (ô'dê-ô-tî'pîng) *n.* Typing done directly from an audiotape. — **au·di·o·typ·ist** *n.*

au·di·o·vis·u·al also **au·di·o·vis·u·al** (ô'dê-ô-vîzh'-ô-âl) — *adj.* *Abbr.* **AV, A.V.** 1. Both audible and visible. 2. Of or relating to materials, such as films and tape recordings, that present information in audible and pictorial form: *a corporation's audio-visual department.* — *n.* An aid, other than printed matter, that uses sight or sound to present information: *language tapes, videocassettes, and other audio-visuals.*

au·dit (ôdît) *n.* *Abbr.* **aud.** 1. An examination of records or financial accounts to check their accuracy. 2. An adjustment or correction of accounts. 3. An examined and verified account. — **audit v.** -dit-ed, -dit-ing, -dits. — *tr.* 1. To examine, verify, or correct the financial accounts of: *Independent accountants audit the company annually. The IRS audits questionable income tax returns.* 2. To attend (a course) without requesting or receiving academic credit. — *intr.* To examine financial accounts. [Middle English (influenced by *auditor*, auditor), from Latin *auditus*, a hearing, from past participle of *audire*, to hear. See **au-** in Appendix.]

au·di·tion (ô-dîsh'ân) *n.* 1. The sense or power of hearing. 2. The act of hearing. 3. *Abbr.* **aud.** A trial performance, as by an actor, dancer, or musician, to demonstrate suitability or skill. — **audition v.** -tioned, -tion-ing, -tions. — *intr.* To take part in a trial performance: *auditioned for the role and got it.* — *tr.* To evaluate (a person) in a trial performance. [Latin *auditiô*, *auditiôn-*, from *auditus*, past participle of *audire*, to hear. See **au-** in Appendix.]

au·di·tive (ô'dî-tîv) *adj.* Of or relating to hearing; auditory.

au·di·tor (ô'dî-tôr) *n.* *Abbr.* **aud.** 1. One that audits accounts. 2. One who audits a course. 3. One who hears; a listener. [Middle English, from Anglo-Norman *auditour*, from Latin *auditor*, listener, from *audire*, to hear. See **au-** in Appendix.]

au·di·to·ri·um (ô'dî-tôr'ê-âm, -tôr'-) *n., pl. -ri·ums* or *-ri·a* (-tôr'ê-â, -tôr'-). 1. A large room to accommodate an audience in a building such as a school or theater. 2. A large building for public meetings or performances. [Latin, from *audire*, to hear. See **au-** in Appendix.]

au·di·to·ry (ô'dî-tôr'ê, -tôr'ê) *adj.* Of or relating to hearing, the organs of hearing, or the sense of hearing. [Late Latin *audîtorius*, from Latin *audire*, to hear. See **au-** in Appendix.]

auditory nerve *n.* *Anatomy.* See **acoustic nerve**.

Au·du·bon (ô'dâ-bôn', -bân), **John James.** 1785–1851. Haitian-born American ornithologist and artist whose extensive observations of eastern North American avifauna led to the publication of *The Birds of America* (1827–1838), a collection of his engravings that is considered a classic work in ornithology and American art.

Auf·klä·rung (ouf'klä'röng) *n.* The Enlightenment. [German: *auf*, up (from Middle High German *ûf*, from Old High German; see **upo** in Appendix) + *Klärung*, a making clear (from *klären*, to make clear, from Middle High German *klāren*, from *klār*, clear, from Latin *clarus*; see **CLEAR**).]

auf Wie·der·seh·en (ouf vê'dar-zä'an) *interj.* Used to express farewell. [German: *auf*, until + *Wiedersehen*, seeing again.]

aug. *abbr.* Grammar. Augmentative.

Aug. *abbr.* August.

Au·ge·an (ô-jê'an) *adj.* 1. Exceedingly filthy from long neglect. 2. Requiring heroic efforts of cleaning or correction: *the Augean task of reforming the bureaucracy.* [After *Augeas*, legendary Greek king who did not clean his stable for thirty years.]

au·gend (ô'jênd') *n.* Mathematics. A quantity to which the addend is added. [Latin *augendum*, a thing to be increased, from neuter gerundive of *augere*, to increase. See **aug-** in Appendix.]

au·ger (ô'gor) *n.* 1. A tool for boring holes in wood or ice. 2. A large tool for boring into the earth. [Middle English, from an *auger*, alteration of a *nauger*, from Old English *nafoġar*, *auger*. See **nobh-** in Appendix.]

ought¹ also **ought** (ôt) — *pron.* Anything whatever: "Neither of his parents had ought but praise for him" (Louis Auchincloss). — *adv.* Archaic. In any respect; at all. [Middle English, from Old English *auht*. See **oiw-** in Appendix.]

ought² also **ought** (ôt) *n.* 1. A cipher; zero. 2. Archaic. Nothing. [From an *ought*, alteration of a *naught*. See **NAUGHT**.]

au·gite (ô'jit') *n.* A dark-green to black pyroxene mineral, (Ca,N₂)(Mg,Fe,Al)(Si,Al)₂O₆, that contains large amounts of aluminum, iron, and magnesium. [Latin *augitis*, a precious stone, from Greek *augites*, from *augē*, brightness.]

aug·ment (ôg-mênt') *v.* -ment-ed, -ment-ing, -ments. — *tr.* 1. To make (something already developed or well under way) greater, as in size, extent, or quantity: *Continuing rains augmented the flood waters.* 2. To add an augment to. — *intr.* To become augmented. See Synonyms at **increase**. — **augment** (ôg'mênt') *n.* 1. An enlargement or increase. 2. The prefixation of a vowel accompanying a past tense, especially of Greek and Sanskrit verbs. [Middle English *augmenten*, from Old French *augmenter*,



John James Audubon
Self-portrait, c. 1822



auger
Double twist auger bit

â pat	oi boy
â pay	ou out
âr care	ôo took
â father	ôo boot
ê pet	û cut
ê be	ûr urge
î pit	th thin
î pie	th this
î pier	hw which
ô pot	zh vision
ô toe	â about, item
ô paw	♦ regionalism

Stress marks: ' (primary);
' (secondary), as in
dictionary (dîk'shâ-nêr'ê)

On the cover: Representation of a fullerene molecule with a noble gas atom trapped inside. At the Permian-Triassic sedimentary boundary the noble gases helium and argon have been found trapped inside fullerenes. They exhibit isotope ratios quite similar to those found in meteorites, suggesting that a fireball meteorite or asteroid exploded when it hit the Earth, causing major changes in the environment. (Image copyright © Dr. Luann Becker. Reproduced with permission.)

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McGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS, Sixth Edition

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bicuculine [ORG CHEM] $C_{20}H_{17}NO_6$ A convulsant alkaloid found in plants of the family Fumariaceae. { 'bī'kū-kyə,lēn }

bicuspid [ANAT] Any of the four double-pointed premolar teeth in humans. [BIOL]. Having two points or prominences. { 'bī'kəs-pəd }

bicycle [MECH ENG] A human-powered land vehicle with two wheels, one behind the other, usually propelled by the action of the rider's feet on the pedals. { 'bī'sīk-əl }

bicyclic [BOT] Having or arranged in two whorls, as in petals. { 'bī'sī'klīk }

bicyclic compound [ORG CHEM] A compound having two rings which share a pair of bridgehead carbon atoms. { 'bī'sīk-līk 'kām,pəund }

bld [ENG] An estimate of costs for specified construction, equipment, or services proposed to a customer company by one or more supplier or contractor companies. { 'bīd }

bidalotite See anthophyllite. { 'bā'däl-ə,tīt }

Bidder's organ [VERT ZOO] A structure in the males of some rod species that may develop into an ovary in older individuals. { 'bīd-ərz ,or-gən }

bidentate [BIOL] Having two teeth or toothlike processes. { 'bī'den,tāt }

bidentate ligand [INORG CHEM] A chelating agent having two groups capable of attachment to a metal ion. { 'bī'den,tāt 'līg-ənd }

bidirectional [ENG] Being directionally responsive to inputs in opposite directions. { 'bī-də'rek-shən-əl }

bidirectional antenna [ELECTROMAG] An antenna that radiates or receives most of its energy in only two directions. { 'bī-də'rek-shən-əl an'ten-ə }

bidirectional clamping circuit [ELECTR] A clamping circuit that functions at the prescribed time irrespective of the polarity of the signal source at the time the pulses used to actuate the clamping action are applied. { 'bī-də'rek-shən-əl 'klām-pīŋ ,sər-kət }

bidirectional clipping circuit [ELECTR] An electronic circuit that prevents transmission of the portion of an electrical signal that exceeds a prescribed maximum or minimum voltage value. { 'bī-də'rek-shən-əl 'klīp-īŋ ,sər-kət }

bidirectional counter See forward-backward counter. { 'bī-də'rek-shən-əl 'kaunt-tər }

bidirectional data bus [COMPUT SCI] A channel over which data can be transmitted in either direction within a computer system. { 'bī-də'rek-shən-əl 'dad-ə ,bəs }

bidirectional microphone [ENG ACOUS] A microphone that responds equally well to sounds reaching it from the front and rear, corresponding to sound incidences of 0 and 180°. { 'bī-də'rek-shən-əl 'mī'krə-fōn }

bidirectional parallel port [COMPUT SCI] A parallel port that can transfer data in both directions; and at speeds much greater than a standard parallel port. { 'bī-də'rek-shən-əl ,par-ə,ləl 'pōrt }

bidirectional printer [COMPUT SCI] A printer in which printing can be done in both a left-to-right and a right-to-left direction. { 'bī-də'rek-shən-əl 'prīnt-ər }

bidirectional pulse-amplitude modulation See double-polarity pulse-amplitude modulation. { 'bī-də'rek-shən-əl 'pəls 'ām-plə,tūd ,māj-ə'lā-shən }

bidirectional replication [MOL BIO] A mechanism of replication of deoxyribonucleic acid that involves two replicating forks moving in opposite directions away from the same origin. { 'bī-də'rek-shən-əl ,rep-lē'kā-shən }

bidirectional transducer [ELECTR] A transducer capable of measuring in both positive and negative directions from a reference position. Also known as bilateral transducer. { 'bī-də'rek-shən-əl tranz'dü'sər }

bidirectional transistor [ELECTR] A transistor that provides switching action in either direction of signal flow through a circuit; widely used in telephone switching circuits. { 'bī-də'rek-shən-əl tranz'zīst-ər }

bidirectional triode thyristor [ELECTR] A gate-controlled semiconductor switch designed for alternating-current power control. { 'bī-də'rek-shən-əl 'trī,ōd thi'rīs-tər }

bi-drop [FL MECH] A device in which two drops of different wetting liquids are juxtaposed inside a tube, resulting in spontaneous motion of the liquid and coating of the inner surface of the tube. Also known as Bico bi-drop. { 'bī,drāp }

Beiberbach conjecture [MATH] The proposition, proven in 1984, that if a function $f(z)$ is analytic and univalent in the unit

disk, and if it has the power series expansion $z + a_2z^2 + a_3z^3 + \dots$, then, for all n ($n = 2, 3, \dots$), the absolute value of a_n is equal to or less than n . { 'bē-bā,bāk kən,jek-chər }

bieberite [MINERAL] $CoSO_4 \cdot 7H_2O$ A rose red or flesh red, monoclinic mineral consisting of cobalt sulfate heptahydrate; occurs as crusts and stalactites. { 'bē-bā,rīt }

Biebrich red See scarlet red. { 'bē,brik 'red }

Bledenharn identity [NUC PHYS] A relationship among the six- j symbols of Wigner. { 'bēd-ən,härm i'den-ə-dē }

Biela Comet [ASTRON] A comet seen in 1852 at one perihelion passage; presumed to have separated into two bodies. Also known as Comet Biela. { 'bē-lä ,käm-ət }

Blelids See Andromedids. { 'bē,līdz }

Bienayme-Chebyshev inequality [STAT] The probability that the magnitude of the difference between the mean of the sample values of a random variable and the mean of the variable is less than st , where s is the standard deviation and t is any number greater than 1, is equal to or greater than $1 - (1/t^2)$. { 'bē,nīm-ə chə-bi'shōf ,in-i'kwäl-əd-ē }

biennial plant [BOT] A plant that requires two growing seasons to complete its life cycle. { 'bī'en-ē-əl 'plant }

Bierbaum scratch hardness test [ENG] A test for the hardness of a solid sample by microscopic measurement of the width of scratch made by a diamond point under preset pressure. { 'bīr,bəum 'skrach 'hārd-nəs ,test }

biface tool [DES ENG] A tool, as an ax, made from a coil flattened on both sides to form a V-shaped cutting edge. { 'bī,fās 'tūl }

bifacial [BOT] Of a leaf, having dissimilar tissues on the upper and lower surfaces. [DES ENG] Of a tool, having both sides alike. { 'bī'fā-shəl }

bifanged [ANAT] Of a tooth, having two roots. { 'bī'fæŋd }

bifenox [ORG CHEM] $C_{14}H_9Cl_2NO_5$ A tan, crystalline compound with a melting point of 84–86°C; insoluble in water; used as a preemergence herbicide for weed control in soybeans, corn, and sorghum, and as a pre- and postemergence herbicide in rice and small greens. { 'bī'fēn,āks }

bifid [BIOL] Divided into two equal parts by a median cleft. { 'bī,fīd }

Bifidobacterium [MICROBIO] A genus of bacteria in the family Actinomycetaceae; branched, bifurcated, club-shaped or spatulate rods forming smooth microcolonies; metabolism is saccharoclastic. { 'bī-fā-dō-bak'tīr-ē-əm }

bifilar electromagnetic oscillograph [ELECTROMAG] A writing low-frequency light-beam oscillograph usually using a moving coil with a single U-shaped turn (bifilar type). { 'bī'fī-lār i,lek-trō-mag'ned-ik ə'sīl-ə-graf }

bifilar electrometer [ENG] An electrostatic voltmeter in which two conducting quartz fibers, stretched by a small weight or spring, are separated by their attraction in opposite directions toward two plate electrodes carrying the voltage to be measured. { 'bī'fī-lār i,lek'trām-əd-ər }

bifilar micrometer See filar micrometer. { 'bī'fī-lār mī'krām-əd-ər }

bifilar resistor [ELEC] A resistor wound with a wire doubled back on itself to reduce the inductance. { 'bī'fī-lār rī'zīst-ər }

bifilar suspension [ENG] The suspension of a body from two parallel threads, wires, or strips. { 'bī'fī-lār səs'pen-shən }

bifilar transformer [ELEC] A transformer in which wires for the two windings are wound side by side to give extremely tight coupling. { 'bī'fī-lār tranz'fōrm-ər }

bifilar winding [ELEC] A winding consisting of two insulated wires, side by side, with currents traveling through them in opposite directions. { 'bī'fī-lār 'wīn-dīŋ }

biflabellate [INV ZOO] The shape of certain insect antennae, characterized by short joints with long, flattened processes on opposite sides. { 'bī-flā-bel-ət }

biflagellate [BIOL] Having two flagella. { 'bī'flaj-ə,lāt }

bifluoride [INORG CHEM] An acid fluoride whose formula has the form MHF_2 ; an example is sodium bifluoride, $NaHF_2$. { 'bī'flūr,īd }

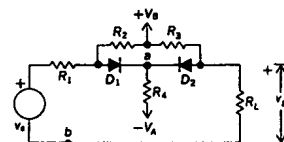
bifocal lens [OPTICS] 1. A lens with two parts having different focal lengths. 2. In particular, an eyeglass lens having one part that corrects for distant vision and one part for near vision. { 'bī'fō-kəl 'lens }

bifoliate [BOT] Two-leaved. { 'bī'fōl-ē-ət }

biforate [BIOL] Having two perforations. { 'bī'fā,rāt }

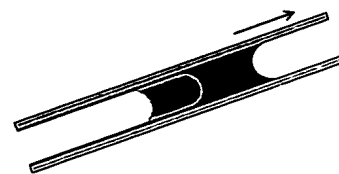
bifunctional catalyst [CHEM] A catalytic substance that

BIDIRECTIONAL CLIPPING CIRCUIT



Circuit diagram of bidirectional clipping obtained by connecting two diodes.

BI-DROP



Self-motion of the Bico bi-drop inside a tube.

On the cover: Representation of a fullerene molecule with a noble gas atom trapped inside. At the Permian-Triassic sedimentary boundary the noble gases helium and argon have been found trapped inside fullerenes. They exhibit isotope ratios quite similar to those found in meteorites, suggesting that a fireball meteorite or asteroid exploded when it hit the Earth, causing major changes in the environment. (Image copyright © Dr. Luann Becker. Reproduced with permission.)

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Atyidae [INV ZOO] A family of decapod crustaceans belonging to the section Caridea. { 'a-tī-ə-dē }

A-type star [ASTRON] In star classification based on spectral characteristics, the type of star in whose spectrum the hydrogen absorption lines are at a maximum. Also known as A star. { 'a-tīp, stār }

A-type virus particles [VIROL] A morphologically defined group of double-shelled spherical ribonucleic acid virus particles, often found in tumor cells. { 'a-tīp 'vī-rəs, 'pɑrd-ə-kəlz }

Au See gold.

AU See astronomical unit.

Auberg blood group system [IMMUNOL] An immunologically distinct, genetically determined human erythrocyte antigen, demonstrated by reaction with anti-Au² antibody. { 'ə-bər, zhā 'bləd, grüp, sis-təm }

Aubert phenomenon [PSYCH] The perception of a vertical line as oblique by an observer whose head is inclined to one side in a darkened room. { 'ə-bər fə'nām-ə-nən }

aubrite [GEOL] An enstatite achondrite (meteorite) consisting almost wholly of crystalline-granular enstatite (and clinoenstatite) poor in lime and practically free from ferrous oxide, with accessory oligoclase. Also known as bustite. { 'ə,brit }

Auchenorrhyncha [INV ZOO] A group of homopteran families and one superfamily, in which the beak arises at the anteroventral extremity of the face and is not sheathed by the propleura. { 'ək-ə-nə'rīŋ-kə }

audibility [ACOUS] 1. The state or quality of being heard. 2. The intensity of a received audio signal, usually expressed in decibels above or below 1 milliwatt using a stated single frequency sine wave. { 'əd-ə-bil-əd-ē }

audibility curve [ACOUS] 1. The limits of hearing represented graphically as an area by plotting the minimum audible intensity of a sine wave sound versus frequency. 2. See equal loudness contour. { 'əd-ə-bil-əd-ē kərv }

audibility threshold [ACOUS] The sound intensity at a given frequency which is the minimum perceptible by a normal human ear under specified standard conditions. { 'əd-ə-bil-əd-ē 'thresh,hold }

audible feedback [COMPUT SCI] A feature of a computer keyboard that generates sound each time a key is depressed sufficiently to generate a character on the screen. { 'əd-ə-bəl 'fēd,bak }

audible frequency See audible tone. { 'əd-ə-bəl 'frē-kwən-sē }

audible leak detector [ENG] A device used as an auxiliary to the main leak detector for conversion of the output signal into audible sound. { 'əd-ə-bəl 'lek di,tek-tər }

audible tone [ACOUS] Sound of a frequency which the average human can hear, ranging from 30 to 16,000 hertz. Also known as audible frequency. { 'əd-ə-bəl 'tōn }

audio [ACOUS] 1. Of or pertaining to sound in the range of frequencies considered audible at reasonable listening intensities to the average young adult listener, approximately 15 to 20,000 hertz. 2. Pertaining to equipment for the recording, transmission, reproduction, or amplification of such sound. { 'əd-ē-ō }

audio adapter See sound board. { 'əd-ē-ō ə'dap-tər }

audio amplifier See audio-frequency amplifier. { 'əd-ē-ō 'am-plə-fi-ər }

audio frequency [ACOUS] A frequency that can be detected as a sound by the average young adult, approximately 15 to 20,000 hertz. Abbreviated af. Also known as sonic frequency; sound frequency. { 'əd-ē-ō 'frē-kwən-sē }

audio-frequency amplifier [ELECTR] An electronic circuit for amplification of signals within, and in some cases above, the audible range of frequencies in equipment used to record and reproduce sound. Also known as audio amplifier. { 'əd-ē-ō 'frē-kwən-sē 'am-plə-fi-ər }

audio-frequency choke [ELECTROMAG] Choke used to impede the flow of audio-frequency currents; generally a coil wound on an iron core. { 'əd-ē-ō 'frē-kwən-sē 'chōk }

audio-frequency meter [ENG] One of a number of types of frequency meters usable in the audio range; for example, a resonant-reed frequency meter. { 'əd-ē-ō 'frē-kwən-sē 'mēd-ər }

audio-frequency oscillator [ELECTR] An oscillator circuit using an electron tube, transistor, or other nonrotating device to produce an audio-frequency alternating current. Also

known as audio oscillator. { 'əd-ē-ō 'frē-kwən-sē 'ās-ə-lād-ər }

audio-frequency peak limiter [ELEC] A circuit used in an audio-frequency system to cut off signal peaks that exceed a predetermined value. Also known as audio peak limiter. { 'əd-ē-ō 'frē-kwən-sē 'pēk, 'lim-əd-ər }

audio-frequency range [ACOUS] The range of frequencies to which the human ear is sensitive, approximately 15 to 20,000 hertz. Also known as audio range. { 'əd-ē-ō 'frē-kwən-sē 'rāŋj }

audio-frequency shift modulation [COMMUN] System of facsimile transmission over radio, in which the frequency shift required is applied through an 800-hertz shift of an audio signal, rather than shifting the radio transmitter frequency; the radio signal is modulated by the shifting audio signal, usually at 1500 to 2300 hertz. { 'əd-ē-ō 'frē-kwən-sē 'shift māj-ə-lā-shən }

audio-frequency transformer [ELEC] An iron-core transformer that is used for coupling audio-frequency circuits. Also known as audio transformer. { 'əd-ē-ō 'frē-kwən-sē 'tranz'fər-mər }

audiogenic seizure [MED] A transient episode of muscular, sensory, or psychic dysfunction induced by sound. { 'əd-ē-ōjēn-ik 'sē-zhər }

audiogram [ACOUS] A graph showing hearing loss, percent hearing loss, or percent hearing as a function of frequency. { 'əd-ē-ō,gram }

audio image [ACOUS] A sound that originates, or appears to originate, at a certain point in space. { 'əd-ē-ō, 'im-ij }

audiolimpedance measurement [ACOUS] The measurement of acoustic impedance, as in the direct assessment of the dynamic motor control of sound feedback of different parts of the ear. { 'əd-ē-ō, 'im-pēd-əns 'mez,ər-mēnt }

audiology [ACOUS] The science of hearing. { 'əd-ē-ō-l-ə-jē }

audio masking See masking. { 'əd-ē-ō 'mask-ŋj }

audiometer [ENG] An instrument composed of an oscillator, amplifier, and attenuator and used to measure hearing acuity for pure tones, speech, and bone conduction. { 'əd-ē-ōm-əd-ər }

audiometry [ACOUS] The study of hearing ability by means of audiometers. { 'əd-ē-ōm-ə-tre }

audio-modulated radiosonde [ENG] A radiosonde with a carrier wave modulated by audio-frequency signals whose frequency is controlled by the sensing elements of the instrument. { 'əd-ē-ōmāj-ə-lād-əd 'rād-ē-ō, 'sənd }

audio oscillator See audio-frequency oscillator. { 'əd-ē-ō 'ās-ə-lād-ər }

audio patch bay [ENG ACOUS] Specific patch panels provided to terminate all audio circuits and equipment used in a channel and technical control facility; this equipment can also be found in transmitting and receiving stations. { 'əd-ē-ō 'pach, bā }

audio peak limiter See audio-frequency peak limiter. { 'əd-ē-ō 'pēk, 'lim-əd-ər }

audio range See audio-frequency range. { 'əd-ē-ō, 'rāŋj }

audio response [COMMUN] A form of computer output in which prerecorded spoken syllables, words, or messages are selected and put together by a computer as the appropriate verbal response to a keyboarded inquiry on a time-shared on-line information system. { 'əd-ē-ō ri'spāns }

audio response unit [COMMUN] A magnetic recording system that provides voice response to an inquiry made from a typewriter or telephone-type terminal connected to a computer by a data transmission line. { 'əd-ē-ō ri'spāns, yū-nət }

audio signal [ACOUS] An electric signal having the frequency of a mechanical wave that can be detected as a sound by the human ear. { 'əd-ē-ō, 'sig-nəl }

audio spectrometer See acoustic spectrometer. { 'əd-ē-ō 'spek'trām-əd-ər }

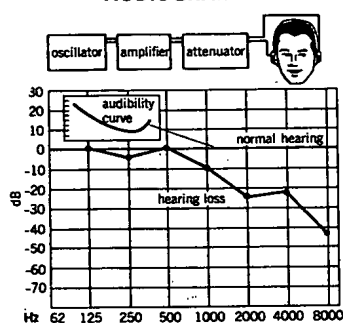
audio system See sound-reproducing system. { 'əd-ē-ō, 'sis-təm }

audio taper [ENG ACOUS] A special type of potentiometer used in a volume-control apparatus to compensate for the nonlinearity of human hearing and give the impression of a linear increase in audibility as volume is raised. Also known as linear taper. { 'əd-ē-ō, 'tā-pər }

audio transformer See audio-frequency transformer. { 'əd-ē-ō 'tranz'fər-mər }

audiovisual [COMMUN] Pertaining to methods of education

AUDIOGRAM



Audiogram for determining the audibility curve for pure-tone hearing loss at various frequency levels.